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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,491	06/09/2006	Michiyo Yanase	YAMAP0997US	9721
43076 7590 04/04/2008 MARK D. SARALINO (GENERAL) RENNER, OTTO, BOISSELLE & SKLAR, LLP 1621 EUCLID AVENUE, NINETEENTH FLOOR CLEVELAND, OH 44115-2191				
EXAMINER				
SAIDHA, TEKCHAND				
ART UNIT		PAPER NUMBER		
1652				
MAIL DATE		DELIVERY MODE		
04/04/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/560,491

**Applicant(s)**

YANASE ET AL.

**Examiner**

Tekchand Saidha

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-40 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Claims 1-40 are present in this application. Restriction is required under 35 U.S.C. 121 and 372.
2. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.
3. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

**Group I**, claim(s) 1-19 & 34, drawn to a modified plant  $\alpha$ -glucan phosphorylase having improved thermostability obtained from 15  $\alpha$ -glucan phosphorylase sequences and having 4 distinct motif sequences.

Election is required of ONE  $\alpha$ -glucan phosphorylase sequence from among SEQ ID NO: 2, 4, 6.....30 [See claim 3, for example], and election is also required for the corresponding single (ONE) motif sequence.

**Group II**, claim(s) 20-27, drawn to a method of producing a modified plant  $\alpha$ -glucan phosphorylase having improved thermostability obtained from among 15  $\alpha$ -glucan phosphorylase encoding sequences and having 4 distinct motif sequences.

Election is required of ONE  $\alpha$ -glucan phosphorylase encoding sequence, wherein the encoded phosphorylase is SEQ ID NO: 2, 4, 6.....30 [See claim 3, for example], and election is also required for the corresponding single (ONE) motif sequence.

**Group III**, claim(s) 28-30, drawn to a method of synthesizing a  $\alpha$ -glucan, using the modified plant  $\alpha$ -

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glucan phosphorylase having improved thermostability obtained from 15  $\alpha$ -glucan phosphorylase sequences and having 4 distinct motif sequences.

Election is required of ONE  $\alpha$ -glucan phosphorylase sequence from among SEQ ID NO: 2, 4, 6.....30 [See claim 3, for example], and election is also required for the corresponding single (ONE) motif sequence.

Group IV, claim(s) 35 & 40, drawn to a modified plant  $\alpha$ -glucan phosphorylase having improved thermostability, wherein amino acid residues are different from that of the natural  $\alpha$ -glucan phosphorylase in at least one position selected from phenylalanine at position 39 (F39), asparagine at position 135 (N135), and threonine at position 706 (T706) of SEQ ID NO: 2.

Group V, claim(s) 36, drawn to a method of producing  $\alpha$ -glucan phosphorylase by modifying a nucleic acid in order that mutant  $\alpha$ -glucan phosphorylase is modified at position selected from phenylalanine at position 39 (F39), asparagine at position 135 (N135), or threonine at position 706 (T706) of SEQ ID NO: 2.

Group VI, claim(s) 37-39, drawn to a method of synthesizing a glucan by reacting phosphorylase of claim 35

For each of inventions I-III above, restriction is also required of ONE  $\alpha$ -glucan phosphorylase sequence from among SEQ ID NO: 2, 4, 6.....30 [See claim 3, for example], and election is also required for the corresponding single (ONE) motif sequence.

4. The inventions listed as Groups I-VI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical feature for the following reasons: The technical feature linking Groups I appears to be that they all relate to  $\alpha$ -glucan phosphorylase sequence from among SEQ ID NO: 2, 4, 6.....30 and also motif sequences, all of sequences and motifs having varying structures/activities, which groups II-VI do not share; Group II has a special technical feature of a method of producing  $\alpha$ -glucan phosphorylase using a modified base sequence, which groups I and III-VI do not share; Group III has a special technical feature of a method synthesizing a  $\alpha$ -glucan using  $\alpha$ -glucan phosphorylase of claim 1, which Groups I-II and IV-VI do not share; Group IV has a special technical feature of a specific mutant  $\alpha$ -glucan phosphorylase, which groups I-III & V-VI do not share; Group V has a special technical feature of a method of producing  $\alpha$ -glucan phosphorylase mutant by modifying a nucleic acid, which groups I-IV & VI do not share; Group VI has a special technical feature of a method of synthesizing a  $\alpha$ -glucan by reacting a specific mutants of  $\alpha$ -glucan phosphorylase of claim 35, which groups I-V do not share.

The USPTO published a pre-OG notice regarding its new position on restriction practice in pending applications that relate to nucleic acid sequences. Prior to this notice, the PTO had been officially operating under the direction of an Official Gazette notice dated November 19, 1996. The old notice allowed for a partial waiver of

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requirements for restriction and unity of invention for applications relating to nucleotide sequences by permitting examination of a "reasonable" number -- typically up to ten -- independent and distinct molecules described by their nucleotide sequences in a single patent application. This newly published notice effectively rescinds the 1996 notice, and requires that claims to polynucleotide sequences "be considered for independence, relatedness, distinction and burden as for claims to any other type of molecule." Effectively, this means that applicants will be allowed to claim only a single polynucleotide sequence per patent application.

Concurrently, the encoding polypeptide sequences are also distinct from one another.

The notice lists a number of factors that motivated the change, the most interesting of which (to me) is the 54-fold increase in the number of nucleic acid sequences in the GenBank® database (and a 91-fold increase in the number of nucleotides) between 1996 and February 2006. Further, the Office believes that this change will provide applicants with a more focused and consistent course of examination, as a result of the decrease in the search and examination burdens.

This notice provides an official change in the PTO's policy regarding the treatment of inventions relating to polynucleotide sequences. However, this change likely will have little to no effect on the day-to-day practice of biotech restriction practice, as this notice seems to postdate what has already become common practice at the PTO.

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Accordingly, Groups I-VI and protein/nucleic acid sequences and the corresponding motifs are not so linked by the same or a corresponding special technical feature as to form a single general inventive concept.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

6. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. Process claims that depend from or otherwise include all the limitations of the patentable product will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tekchand Saidha whose telephone number is (571) 272 0940. The examiner can normally be reached on 8.30 am - 5.00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nashaat Nashed can be reached on (571) 272 0934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tekchand Saidha/

Primary Examiner, Art Unit 1652

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March 28, 2008